(9306-051)

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JUNE 7-8, 1993
NON-TECHNICAL

A ONE-PAGE DESCRIPTION OF THE PROPOSED EXPERIMENT IN NON-TECHNICAL LANGUAGE:

In the treatment of patients with metastatic cancer, i.e., cancer that has spread beyond the primary site involved, the administration of several anti-cancer drugs is usually required. High doses of these drugs is so damaging to normal human bone marrow cells that removal of some bone marrow from the patient prior to being given the drug is routinely performed; this marrow is then put back into the patient after the effects of the chemotherapy are gone.

The goal of these studies is to transfer a gene into the patient's normal bone marrow cells when they are removed (bone marrow transplantation) as ordinarily occurs in treatment to make these cells resistant to the effects of these drugs. The result of this procedure will be the creation of normal bone marrow cells more resistant to some types of routinely used anticancer drugs. Bone marrow expressing this new added gene should be resistant to the killing effect of these drugs. The patient can, therefore, produce more normal levels of red and white blood cells and platelets during chemotherapy. This may confer a significant advantage to patients with cancer that has spread, especially when given subsequent rounds of chemotherapy. Theoretically, the more chemotherapy the patient receives after getting the drug-resistant gene the more resistant bone marrow cells will remain in the patient since bone marrow cells that do not express the added gene will be preferentially killed. This treatment, if successful, could allow patients with advanced cancer to receive high doses of potentially effective drugs, or allow patients to be treated with drugs who could not otherwise be treated because of the side effect to their bone marrow.

The potential harm of the use of this "gene therapy" is minimal. Animal studies and other laboratory tests have shown this type of gene therapy to be safe. Thus, this gene therapy treatment may benefit patients with cancer that has spread but not involving the bone marrow. We are trying this therapy first in patients with advanced breast cancer in the hope that we can decrease the damage done by drug treatment to the bone marrow, and allow more and higher doses of drugs to be given to these patients. At future times, this treatment, if successful, could lead to higher doses of chemotherapy to be given earlier, and a greater chance of remission and possible cure.